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USE PATTERN OF DIGITAL LIBRARY IN EDUCATING ENGINEERING GRADUATES AROUND TIRUNELVELI DISTRICT– A CASE STUDY

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ABSTRACT

Due to information explosion, textual information is scattered in the various electronic format. In the rapid digital era, users can access any type of information from any place at any time. To provide such a integrated environment to access information, Digital library plays a vital role in disseminating digital information simultaneously in a single place to large number of user society. In the digital era, it is very essential to measure the use pattern of Digital Library among engineering graduates which help them to overcome their academic challenges. In this study, questionnaire is structured and issued to 150 Post Graduates of Engineering around 5 colleges in Tirunelveli district. Out of 150, 121 responded and get collected. In this study, we have analysed the use pattern of Digital Library resources among post graduates of engineering. After analyzing , we came to know 54.55% of the respondents aware of digital library resources. Also we reveal that awareness of digital library resources is found rich among post graduate engineering of Communication system of 62.07%.

KEYWORD
Digital Library, Education, Engineering, Awareness, Usage, Use Pattern

INTRODUCTION

A digital library, digital repository, or digital collection, is an online database of digital objects that can include text, still images, audio, video, or other digital media formats.[8] Digital library is enhanced by various technology of this modern digital era. Nowadays use of digital library also get increased to support every user in their academic education. Huge number of digital resources are available for the various type of academic learners.

NEED FOR THE STUDY

Digital library plays vital role in disseminating information in a rapid form. Hence, it is very keen to analyse the use pattern of digital library among post engineering graduates in their academic growth of day today routine life.

OBJECTIVES OF STUDY

In this paper, we would to like to determine the following objectives.

- To track the user visit to library
- To identify the purpose of visiting library
- To identify the purpose of accessing digital library

- To identify the user awareness of digital library resources
- To examine the use pattern of digital library resources
- To find rank in purpose of using digital library resources
- To analyse the user satisfication of digital library resources
- To examine the challenges faced in accessing digital library resources

SCOPE AND LIMITATIONS

This study is limited to college around Tirunelveli district among postgraduates of Engineering affiliated with Annauniversity, Chennai.

HYPOTHESIS

In this study, to access the use pattern of Digital Library Resources, the following hypotheses have been constructed and those are tested by specific statistical tools.

- There is no significant difference between genders in frequent visit of Library
- There is no significant difference among courses in frequent visit of Library
- There is no significant difference between genders in frequently used device to access Digital Library Resources
- There is no significant differences among genders in Digital Library satisfaction

RESEARCH METHODS

In this study, Questionnaire is prepared and distributed to 5 colleges affiliated to Annauniversity around district of Tirunelveli. 150 questions distributed. Out of 150, 121 responded and get collected. All respondents are belonged to post graduates.

DATA ANALYSIS AND INTERPRETATION

1. GENDERWISE DISTRIBUTION

Table 1 – Gender wise distribution of respondents

S.NO	GENDER	RESPONDENTS	%
1	Male	42	34.71
2	Female	79	65.29
Total		**121**	**100**

Out of 121 respondents, Female is in top most level(65.29%) followed by male(34.71%)

2. YEARWISE DISTRIBUTION

Table 2 – Year wise distribution of respondents

S.NO	Year	RESPONDENTS	%
1	I Year	73	60.33
2	II Year	48	39.67
Total		**121**	**100**

Out of 121 respondents, I year is in top most level(60.33%) followed by II Year (39.67%)

3. COURSEWISE DISTRIBUTION

Table 3 – Course wise distribution of respondents

S.NO	COURSES	RESPONDENTS	%
1	ELECTRONICS	39	32.23
2	COMMUNICATION SYSTEM	29	23.97
3	COMPUTER SCIENCE	44	36.36
4	OTHERS	9	7.44
Total		**121**	**100%**

Out of 121 respondents, Computer Science is in top most level(36.36%) followed by Electronics (32.23%), Communications System (23.97%), Others (7.44)

4.FREQUENCY OF LIBRARY VISIT AMONG GENDERWISE

Hypothesis Statement
H0:There is no significant difference between genders in frequent visit of library visit
H1:There is a significant difference between genders in frequent visit of library visit

Table 4 – Frequency of Library Visit of respondents among Genderwise

GENDER	Daily	More than 3 times a week	2-3 times a week	Once a week	Once a month	TOTAL
MALE	8 (19.05%)	5 (11.90%)	10 (23.81%)	12 (28.57%)	7 (16.67%)	42 (34.71%)
FEMALE	18 (22.79%)	12 (15.19%)	26 (32.91%)	14 (17.72%)	9 (11.39%)	79 (65.29%)
TOTAL	26 (21.49%)	17 (14.05%)	36 (29.75%)	26 (21.49%)	16 (13.22%)	121 (100%)

Out of 121 respondents, 2-3 times a weekly visit of library usage in top most level(29.75%) followed by Daily & Once a week(21.49%), More than 3 times a week (14.05%), Once a month (13.22%)

CHI-SQUARE CALCULATED VALUE	DEGREE OF FREEDOM	LEVEL OF SIGNIFICANCE
3.2316	4	0.05 SIGNIFICANT

The chi-square statistic value is 3.2316. The p-value for level 0.05 is 0.519845. The

calculated Chi-square statistic value is greater than critical value. Hence the result is significant. Therefore Null Hypothesis is rejected. (i.e) There is a significant difference among genders in frequent visit of library.

5.FREQUENCY OF LIBRARY VISIT AS PER COURSE WISE

Hypothesis Statement
H0:There is no significant difference among courses in frequent visit of library visit.
H1:There is a significant difference among courses in frequent visit of library visit.

Table 5 – Frequency of Library Visit of respondents as per coursewise

COURSE	Daily	More than 3 times a week	2-3 times a week	Once a week	Once a month	TOTAL
ELECTRONICS	8 (30.77%)	5 (29.41%)	10 (27.78%)	8 (30.77%)	8 (50%)	39 (32.23%)
COMMUNICATION SYSTEM	6 (23.08%)	6 (35.29%)	7 (19.44%)	4 (15.38%)	6 (37.5%)	29 (23.97%)
COMPUTER SCIENCE	7 (26.92%)	4 (23.53%)	19 (52.78%)	14 (53.85%)	0 (0%)	44 (36.36%)
OTHERS	5 (19.23%)	2 (11.76%)	0 (0%)	0 (0%)	2 (12.5%)	9 (7.44%)
TOTAL	26 (21.49%)	17 (14.05%)	36 (29.75%)	26 (21.49%)	16 (13.22%)	121 (100%)

Out of 121 respondents, ELECTRONICS(30.77%) is top level in Daily usage of Library followed by COMPUTER SCIENCE (26.92%), COMMUNICATION SYSTEM(23.08%), and OTHERS (19.23%) .

Out of 121 respondents, COMMUNICATION SYSTEM(35.29%) is top level in Library usage of More than 3 times a week followed by ELECTRONICS (29.41%), COMPUTER SCIENCE (23.53%), and OTHERS (11.76%) .

Out of 121 respondents, COMPUTER SCIENCE (52.78%) is top level in Library usage of 2-3 times a week followed by ELECTRONICS(27.78%), COMMUNICATION SYSTEM(19.44%), OTHERS in NILL .

Out of 121 respondents, COMPUTER SCIENCE (53.85%) is top level in Library usage of once a week followed by ELECTRONICS(30.77%), COMMUNICATION SYSTEM(15.38%), OTHERS in NILL .

Out of 121 respondents, ELECTRONICS (50%) is top level in Library usage of once a month followed by COMMUNICATION SYSTEM(37.5%), OTHERS(12.5%), COMPUTER SCIENCE in NILL .

After evaluating the above data by the Fisher's Exact Test, the p-value for level 0.05 is 0.0001. It determines the alternate hypothesis of two sided. The result is significant. Therefore Null Hypothesis is rejected. (i.e) There is a significant difference among courses in frequent visit of library among various courses.

6. PURPOSE OF VISITING LIBRARY

Table 6 – Purpose of visiting library by respondents

S.NO	Purpose	RESPONDENTS	%
1	Reading Newspaper	9	7.44
2	Study Alone	10	8.26
3	Use Reference service	16	13.22
4	Reading Magazines	6	4.96
5	Check in / OutBooks	21	17.36
6	Reading Journals	4	3.31
7	To Browse Information	15	12.40
8	Reprographic services	14	11.57
9	To access old question papers	10	8.26
10	To use Digital library section	16	13.22
Total		**121**	**100**

Out of 121 respondents, most purpose of visiting library is Check In/Out Books (17.36%) in the top most level followed by Use of Reference Section & Digital Library Section (13.22%), Browse Information (12.40%) , Reprographic services (11.57%), Study alone & To Access Old Question Papers (8.26%), Reading Newspaper (7.44%) , Reading Magazines (4.96%) and Reading Journals (3.31%).

7. USER AWARENESS OF DIGITAL LIBRARY RESOURCES

Table 7A – STATUS OF USER AWARENESS OF DIGITAL LIBRARY RESOURCES AMONG GENDERWISE

GENDER	HIGHLY AWARE	AWARE	PARTIALLY AWARE	NOT AWARE	TOTAL
MALE	7	23	7	5	42
FEMALE	11	43	17	8	79
TOTAL	**18 (14.88%)**	**66 (54.55%)**	**24 (19.83%)**	**13 (10.74%)**	**121 (100%)**

Out of 121 respondents, Awareness of digital library resource is found rich among two genders is in top level (54.55%), followed by partially aware (19.83%) , Highly aware (14.88%) and not aware (10.74%).

Table 7B – STATUS OF USER AWARENESS OF DIGITAL LIBRARY RESOURCES AMONG COURSEWISE

COURSE	HIGHLY AWARE	AWARE	PARTIALLY AWARE	NOT AWARE	TOTAL
ELECTRONICS	4 (10.26%)	20 (51.28%)	10 (25.64%)	5 (12.82%)	**39 (100%)**
COMMUNICATION SYSTEM	4 (13.79%)	18 (62.07%)	3 (10.34%)	4 (13.79%)	**29 (100%)**
COMPUTER SCIENCE	9 (20.45%)	26 (59.09%)	8 (18.18%)	1 (2.27%)	**44 (100%)**
OTHERS	1 (11.11%)	2 (22.22%)	3 (33.33%)	3 (33.33%)	**9 (100%)**
TOTAL	**18 (14.88%)**	**66 (54.55%)**	**24 (19.83%)**	**13 (10.74%)**	**121 (100%)**

According to various coursewise out of 121 respondents, Highly Awared group is ComputerScience is in toplevel (20.45%), followed by CommunicationSystem (13.79%) , Others (11.11%) and Electronics (10.26%).

According to various coursewise out of 121 respondents, Awared group is CommunicationSystem is in toplevel (62.07%), followed by ComputerSciene(59.09%) , Electronics (51.28%) and Others (22.22%).

According to various coursewise out of 121 respondents, Partially Awared group is Others is in toplevel (33.33%), followed by Electronics (25.64%) , ComputerScience (18.18%) and CommunicationSystem (10.34%).

According to various coursewise out of 121 respondents, Not Awared group is Others is in toplevel (33.33%), followed by CommunicationSystem(13.79%) , Electronics(12.82%) and ComputerScience (2.27%).

From the table 7A, Out of 121 repondents 13 respondents have said not aware about digital library resources. Among 13 respondents, reason behind them for not awaring digital library resources is computed in the following table 7C

Table 7C – FACTORS FOR NOT AWARENESS OF DIGITAL LIBRARY RESOURCES AMONG COURSEWISE

COURSE	NO INTEREST	NOT USEFUL	NO SKILL ON DL SERVICES	DON'T KNOW HOW TO USE	GET RESOURCES FROM OTHER WAY	TOTAL
ELECTRONICS	0	0	1	2	2	5
COMMUNICATION SYSTEM	1	0	1	2	0	4
COMPUTER SCIENCE	0	0	0	0	1	1
OTHERS	1	1	1	0	0	3
TOTAL	**2 (15.38%)**	**1 (7.69%)**	**3 (23.08%)**	**4 (30.77 %)**	**3 (23.08%)**	**13 (100%)**

From the above table out of 13 respondents, we anlayse that 30.77% of respondents said DON'T KNOW HOW TO USE is in top level for reason of NOT AWARE followed by GET RESOURCES FROM OTHER WAY & NO SKILL ON DL SERVICES(23.08%) both sharing second spot followed by NO INTEREST (15.38%) and NOT USEFUL(7.69%)

8. LEVEL OF EXPERIENCE IN USING DIGITAL LIBRARY RESOURCES

Table 8 – Level of Experience of using Digital Library Resources by respondents

S.NO	Level of Experience	RESPONDENTS	%
1	Less than 6 months	13	10.74
2	6 months to 1 year	20	16.53
3	1-2 years	45	37.19
4	2-3 years	23	19.01
5	3-5 years	14	11.57
6	More than 5 years	6	4.96
Total		**121**	**100**

Out of 121 respondents, Level of experience is 1-2 years in top most level (37.19%) followed by 2-3 years (19.01%), 6 months – 1 year (16.53%), 3-5 years (11.57%), More than 5 years (4.96 %).

9. FREQUENCY OF USING DIGITAL LIBRARY RESOURCES

Table 9 – Frequency of using Digital Library Resources by respondents

S.NO	Level of Experience	RESPONDENTS	%
1	Daily	7	5.79
2	More than 3 times a week	24	19.83
3	2-3 times a week	48	39.67
4	Once a week	33	27.27
5	Once a month	9	7.44
Total		**121**	**100**

Out of 121 respondents, Frequency of using Digital Library resources is 2-3 times a week in top most level (39.67%) followed by Once a week (27.27%), More than 3 times a week (19.83%), Once a month (7.44%) and Daily (5.79%).

10. TIME SPENT IN EACH VISIT OF DIGITAL LIBRARY

Table 10 – Time spent in each visit of Digital Library by respondents

S.NO	Level of Experience	RESPONDENTS	%
1	Less than 1 hr	24	19.83
2	1-2 hrs	33	27.27
3	2-3 hrs	35	28.93
4	3-4 hrs	29	23.97
5	5 hrs and above	0	0
Total		**121**	**100**

Out of 121 respondents, Time spent in each visit of Digital Library is 2-3 hrs in top most level (28.93%) followed by 1-2 hrs(27.27%), 3-4 hrs (23.97%), Less than 1 hr(19.83%) and 5 hrs and above is NIL.

11. DIGITAL LIBRARY ACCESS POINT

Table 11– Most Accessed Point of accessing Digital Library resources by respondents

S.NO	Most Accessd	RESPONDENTS	%
1	College Campus	76	62.81
2	Home	27	22.31
3	Browsing Centre	18	14.88
Total		**121**	**100**

Out of 121 respondents, Most accessed point of accessing Digital Library resources is College Campus (62.81%), followed by Home (22.31%), Browsing Centre (14.88%).

12. METHOD OF BROWSING DIGITAL RESOURCE SKILL

Table 12 – Method of Browsing Digital Resource Skill

S.NO	Method	RESPONDENTS	%
1	Search Engine	49	40.50
2	Direct Domain Website	35	28.93
3	Consortium	4	3.30
4	Subscribed Databases	33	27.27
Total		**121**	**100**

Out of 121 respondents, method of browsing digital resource skill is Search Engine(40.50%) in top most level , followed by Direct Domain Website (28.93%), Subscribed Databases (27.27%), and Consortium (3.30%)

13. FREQUENTLY USED DEVICE TO ACCESS DIGITAL LIBRARY RESOURCES

Hypothesis Statement

H0:There is no significant difference between genders in frequently used device to access digital library resources

H1:There is a significant difference between genders in frequently used device to access digital library resources

Table 13 – Frequency of device to access digital library resources by respondents

GENDER	Laptop	Desktop	Mobile	TOTAL
MALE	9	27	6	42
FEMALE	22	47	10	79
TOTAL	31 (25.62%)	74 (61.16%)	16 (13.22%)	121 (100%)

Out of 121 respondents, frequently accessed device is Desktop in top most level (61.16%) followed by Laptop (25.62%), Mobile (13.22%)

CHI-SQUARE CALCULATED VALUE	DEGREE OF FREEDOM	LEVEL OF SIGNIFICANCE
0.599	2	0.05 SIGNIFICANT

The chi-square statistic value is 0.599. The p-value for level 0.05 is 0.741198. The calculated Chi-square statistic value is less than critical value. The result is not significant. Therefore Null Hypothesis is accepted. (i.e) There is no significant difference between genders in frequently used device to access digital library resources.

14. FACTORS RESPONSIBLE TO LEARN DIGITAL LIBRARY RESOURCES

Table 14 – Factors Responsible to learn Digital Library Resources

S.NO	FACTORS	RESPONDENTS	%
1	SEMINAR	13	10.74
2	COURSES	20	16.53
3	TRAINING FROM LIBRARY	45	37.19
4	FRIENDS	23	19.01
5	PROFESSORS	14	11.57
6	OTHERS	6	4.96
Total		**121**	**100**

Out of 121 respondents, factors responsible to learn Digital Library resources is Training from Library in top most level (37.19%) followed by Friends (19.01%), Courses (16.53%), Professors(11.57%), Seminar (10.74%) and Others (4.96%)

15. PRIORITY IN PURPOSE OF USING DIGITAL LIBRARY RESOURCES

FACTORS	1	2	3	4	5	6	TOTAL
EDUCATION	55 (45.45%)	28 (23.14%)	17 (14.05%)	10 (8.26%)	5 (4.13%)	6 (4.96%)	
RESEARCH	7 (5.79%)	5 (4.13%)	17 (14.05%)	27 (22.31%)	28 (23.14%)	37 (30.58%)	
ASSIGNMENT	36 (29.75%)	26 (21.49%)	25 (20.66%)	10 (8.26%)	12 (9.92%)	12 (9.92%)	**121**
SEMINAR	58 (47.93%)	27 (22.31%)	21 (17.36%)	7 (5.79%)	5 (4.13%)	3 (2.48%)	
PROJECTS	42 (34.71%)	40 (33.06%)	31 (25.62%)	5 (4.13%)	1 (0.83%)	2 (1.65%)	
OTHERS	0 (0%)	12 (9.92%)	17 (14.05%)	20 (16.53%)	33 (27.27%)	39 (32.23%)	

Out of 121 respondents, Maximum of 45.45% of respondent choose Education as 1st priority.

Out of 121 respondents, Maximum of 30.58% for respondent choose Research as 6th Priority

Out of 121 respondents, Maximum of 29.75% of respondents choose Assignment as 1st priority.

Out of 121 respondents, Maximum of 47.93% of respondent choose Seminar as 1st Priority.

Out of 121 respondents, Maximum of 34.71% of respondents choose Projects as 1st Priority.

Out of 121 respondents, Maximum of 32.23% of respondents choose Others as 6th Priority.

16. GARRET VALUE AND RANKING

The Garret ranks were calculated by using appropriate Garret Ranking formula.

Percent Position = $(100 (R_{ij} – 0.5)) / N_j$

Where R_{ij} = Rank given for the ith variable by the jth respondent

Nj = number of variables ranked by the jth respondent

The result is provided in the following table.

Table 16A - Percent Position & Garret Value

S.No	$(100 (R_{ij} – 0.5)) / N_j$	Calculated Value	Garret Value
1	(100 (1 – 0.5)) / 6	8.33	77
2	(100 (2 – 0.5)) / 6	25	63
3	(100 (3 – 0.5)) / 6	41.67	54
4	(100 (4 – 0.5)) / 6	58.33	46
5	(100 (5 – 0.5)) / 6	75	37
6	(100 (6 – 0.5)) / 6	91.67	23

Table 16B - Garret Ranking

FACTORS	1*77	2*63	3*54	4*46	5*37	6*23	Total	%	Rank
EDUCATION	4235	1764	918	460	185	138	7700	77	3
RESEARCH	539	315	918	1242	1036	851	4901	49.01	5
ASSIGNMENT	2772	1638	1350	460	444	276	6940	69.4	4
SEMINAR	4466	1701	1134	322	185	69	7877	78.77	1
PROJECTS	3234	2520	1674	230	37	46	7741	77.41	2
OTHERS	0	756	918	920	1221	897	4712	47.12	6

From the above table, Priority in accessing digital library resource is SEMINAR secure 1st Rank, followed by PROJECTS(2nd Rank), EDUCATION(3rd Rank), ASSIGNMENT (4th Rank), RESEARCH (5th Rank) and OTHERS (6th Rank)

17. OVERALL SATISFICATION WITH DIGITAL LIBRARY SERVICES

Table 17 – Overall Satisfication in Digital Library services

S.NO	FACTOR	RESPONDENTS	%
1	Highly Satisfied	33	27.27
2	Satisfied	41	33.89
3	Lease Satisfied	25	20.66
4	Dissatisfied	19	15.70
5	Highly Dissatisfied	3	2.48
Total		**121**	**100**

Out of 121 respondents, Overall satisfaction with Digital library service is Satisfied (33.89%) in top most level , followed by Highly Satisfied (27.27%), Lease Satisfied (20.66%), Dissatisfied (15.70%) and Highly Dissatisfied (2.48%).

Gender differences on Digital Library satisfaction

H0:There is no significant differences among genders in Digital Library satisfaction
H1:There is a significant differences among genders in Digital Library satisfaction

Table 17 A– Genderwise Satisfication in Digital Library Services

S.NO	FACTOR	MALE	FEMALE	TOTAL	%
1	Highly Satisfied	10	23	33	27.27
2	Satisfied	15	26	41	33.89
3	Lease Satisfied	7	18	25	20.66
4	Dissatisfied	7	12	19	15.70
5	Highly Dissatisfied	3	0	3	2.48
Total		**42**	**79**	**121**	**100**

The t-test value is is -1.47412. The p-value for level 0.05 is 0.89339 . The calculated t-value is less than critical value. The result is not significant. Therefore Null Hypothesis is accepted (i.e) There is no significant differences among genders in Digital library service satisfaction.

18. CHALLENGES FACED WHILE ACCESSING DIGITAL LIBRARY RESOURCES

Table 18 – Challenges faced while accessing Digital Library Resources by respondents

S.NO	Factor	RESPONDENTS	%
1	Network connectivity issues	7	5.79
2	Slow Access	13	10.74
3	Lack of skill	20	16.53
4	Technical Problems	21	17.36
5	Charges to access e-resources	25	20.66
6	Lack of proper guidance	25	20.66
7	Others	10	8.26
Total		**121**	**100**

Out of 121 respondents, Most challenges faced while accesing digital library resources is Charges to access e-resources & Lack of proper guidance (20.66%) sharing top most level , followed by Technical problems (17.36%), Lack of Skill (16.53%), Slow Access (10.74%), Others (8.26%) and Network connectivity (5.79%).

CONCLUSION

In this study, we conclude that most of the post graduate engineering students are satisfied with the digital library resources. Also we analyzed out of 121 respondents, top rank in in accessing digital library resource is for Seminar purpose .It is also evident from the result of study that Lack of proper guidance is one of the key factor which impact among 20.66% of respondents to feel discomfort in accessing the digital library services. Hence it is necessary to identified and need to be adapt some strategy such as hands on training in using the digital library services to overcome the lack of guidance issues in accessing digital library resources.

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